Facilities Development Division

Logbook Tracking Database System Redesign Project

Needs Assessment
Version 1.0

July 2, 2004

FDD LOGBOOK REDESIGN PROJECT

NEEDS ASSESSMENT

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Record of Document Changes

Change Number	Brief Description of Change (include page numbers when applicable)	Date	Responsible Parties
1.0	Draft v 1.0 Needs Assessment Report submitted for review and approval.	July 2, 2004	Shooting Star Solutions, LLC

1 Introduction and Purpose

This report summarizes the results of the needs assessment for the Logbook Tracking Database System Redesign conducted by Shooting Star Solutions, LLC on behalf of the Facilities Development Division. The needs assessment justifies requested improvements to the LTDSR by describing the high level business environment, problems with the existing environment, and opportunities that may be realized.

The steps performed to develop this needs assessment included documenting as-is business and system descriptions, which were provided during interviews with management and staff from the Facilities Development Division (FDD), OSHPD Accounting Office, and Information Systems Section. The current business processes were documented in IDEF0 diagrams and discussed with staff to verify their accuracy. The findings on the current process and existing infrastructure are recorded in Section 3 Baseline Analysis.

This needs assessment provides detailed information on major objectives, as well as specific information needed to meet these objectives for redesign of the Logbook Tracking Database System. This validation and clarification of the FDD business objectives and user needs serves as an *initial* driver for the following Feasibility Study Report (FSR) activities:

- Development of Functional Requirements
- Identification of Alternative Solutions
- Selection of a Proposed Solution

2 Business Case

2.1 Business Program Background

Office of Statewide Health Planning and Development (OSHPD), Facilities Development Division (FDD) is responsible for reviewing hospital and skilled nursing facility construction plans and monitoring this construction in the State of California. FDD uses the Logbook Tracking Database System to track incoming documentation and to ensure that FDD staff adheres to critical timelines of hospital construction. During any given year, FDD enters approximately 2000 construction projects with close to 13 documents per project into the Logbook Tracking Database System. The database system stores data for over 60,000 hospital projects.

FDD regulates the design and construction of healthcare facilities to ensure they are safe and capable of providing services to the public through the work of several functional units as described below:

- The Architectural/Engineering Section is comprised of Plan Review and Field Review functions organized into six geographic regions. A seventh “expedite” region provides plan review and special inspections. This section is responsible for reviewing health care facility plans and specifications, and observes health care facilities construction to ensure compliance with applicable codes and regulations. Architects and engineers from various disciplines are supported by Program Technicians (PT).

- The Seismic Retrofit Program is responsible for carrying out the mandates of SB 1953 to reduce the risk of death and injury in California hospitals due to earthquake damage and improve the availability of emergency medical care after a disaster. This unit performs specialized reviews for structural and non-structural compliance for both new construction and earthquake retrofit projects.
- The Regulations/Legislation Unit is responsible for adoption and implementation of cost-effective, state-of-the-art regulations that govern the design and construction of health care facilities.
- The Emergency Response Unit provides critical structural, nonstructural and fire/life safety assessments of hospitals and skilled nursing facilities in an earthquake disaster area. This unit also coordinates its' actions with the California Emergency Medical Services Authority, the Office of Emergency Services and other emergency agencies.
- The Records Control Unit manages the storage and retrieval of documentation submitted by facilities.

The functions described above are supported by the HBSB/Administrative Services Section which provides the following functions:

- Management of the Inspector of Record (IOR) examination process and issuance of certifications. According to the California Uniform Building Code (UBC), Administrative Code Part 1 Title 24, Inspectors of Record (IOR) must be certified by OSHPD. OSHPD is the governing authority for the IOR certifications and examinations.
- Logbook Redesign Project Management. This function is augmented through contracted services from Shooting Star Solutions, LLC.
- Business analysis, ad hoc reporting, user training and support.

The Accounting Section of the Business Services Division also uses a module of the Logbook Tracking System to perform facility invoicing functions and interface to the OSHPD accounting system, CalSTARS.

The evolving needs of FDD have led to a variety of modules being added to the initial Logbook Tracking Database. The architecture of the Logbook Tracking Database contributed to difficulties in creating an integrated database and providing a system that meets user needs for managing the business processes related to regulating the design and construction of healthcare facilities. This has led to a lack of confidence in the data recorded in the system, the growth of separate databases used by managers and staff to track project status and documentation, and a series of work-arounds to meet field review staff needs.

2.2 Business Problem or Opportunity

OSHPD FDD is responsible for performing the review of hospital and skilled nursing facility construction plans and monitoring this construction in the State of California. The Logbook tracking database system is a critical part of tracking incoming documentation and ensuring that FDD staff adheres to critical timelines of hospital construction.

Three primary business problems have been identified:

- Maintenance and Upgrade Inflexibility
- Absent Functionality
- Absent Controls

Each of the business problems are discussed in more detail below.

2.2.1 Software Maintenance Stability

A necessary part of workstation and server maintenance includes the upgrade of operating system software (such as the migration of Windows 95 to Windows 98 to Windows 2000, and etc.) These upgrades include patches that are applied to desktop and server operating systems and system-level tools that often cause instability in the Logbook programs. This instability is related to the replacement or removal of operating system files that are necessary for correct operation of the Logbook system. As a result the logbook may operate correctly in some cases and fail in other cases.

2.2.2 Absent Functionality

The Logbook was originally created to follow project documents through the review cycle up to Plan Approval. Over the years, modules and functions have been added to address new business needs and regulations. However, due to the complicated table structures and type of technology used, the Logbook fails to provide the functionalities needed by FDD today. As a result, every aspect of the FDD business is missing functionalities in the Logbook. Absent functionalities include the ability to:

Generate Accurate and Timely Reports.

Reporting from the Logbook system is viewed as a difficult and cumbersome task. The reports built into the system may not be used or may require exporting to MS Excel for manipulation and restructuring prior to use. However, not all the reports can be exported to MS Excel; these reports are either not used or manually keyed into MS Excel. Reports that are not available in the Logbook must be built by the FDD business system support staff due to the complicated nature of the tables.

Effectively Manage Projects.

FDD Deputy Director, Regional Supervisors, and Regional Compliance Officers are not able to effectively manage departmental workload and project activities for the duration of a construction project. Management of departmental workload is limited to what staff manually key into the Logbook system and what the Logbook is currently designed to track.

Management requires more sophisticated means for prioritizing office workload and project staffing than what Logbook currently provides.

Regional Supervisors and Regional Compliance Officers have difficulty monitoring project activities. The Logbook system does not have the flexibility to accommodate new regulations and standard practices for construction review. For example, the Logbook system does not accommodate the construction review process outlined in the Testing, Inspection, and Observation Forms. The Logbook does not allow assigning multiple and specialized Inspectors of Record to a project. Projects requiring additional reviews that are part of the standard review cycle can not be flagged (e.g., projects spanning multiple years). Monitoring of project activities across the department is made difficult by non-standardized and manual input of time and mileage tracking.

The Logbook does not accept, route, archive, or easily link to electronic files. The inability to accept electronic files reduces the review time, because the files must be hand delivered and passed from reviewer to reviewer.

Access Project Data Remotely.

The Logbook does not permit remote field access. The inability to provide remote field access reduces the efficiency of the field reviewers' time and creates a time delay for data entry.

Retrieve Facility Information Real Time During an Emergency.

The EOC is unable to retrieve facility information from the Logbook efficiently. Additionally, the EOC is not able to quickly obtain all the health facility information from the Logbook, because Logbook only contains information on hospitals that have undergone construction. The EOC is not able to quickly map an event with an overlay of the hospital locations and statuses.

Incorporating changing code and regulations.

Change to the Logbook to accommodate new codes, standard practices, and regulations is time consuming and cumbersome. For example, the Logbook is currently not prepared to track C-Level Inspector of Record (IOR) certifications.

In addition, the recently passed Senate Bill 2973 mandates a 90-day turnaround for plan review. A more efficient and reliable Logbook Tracking Database System is needed to provide FDD managers with the information on pending projects, available resources, and project details to meet this legislative mandate and for FDD staff to continue to meet internal performance goals for delivery of plan review and inspection services to hospital and skilled nursing facilities.

2.2.3 Absent Controls

Control functions for tracking and reporting project status do not provide adequate information to Plan and Field Review staff. Needed information is not always available, including notification of when construction on a project has started, plan changes, and project closure status. In many cases, managers utilize ancillary databases and other tools to track and report status. Similarly, project status and plan changes affect the accounting function. PT's spend

considerable time making sure that project description codes, activity codes, and status is entered correctly into the Logbook system. Information must be derived from architect and engineer reports that are often in written form and subject to misinterpretation. This process is error prone and often leads to the need for corrections. The system does not provide audit trails to show who made changes, when they were made, or why they were made. Users often try to document these events in memo fields, but this usage is not universal. The project closure process requires considerable manual effort by the PTs to verify report status and perform other review tasks.

2.3 Business Objectives

The redesigned Logbook Tracking system must meet the following business objectives identified during interviews with FDD staff and management:

- One complete enterprise-level system used by all FDD functional units regardless of location.
- Allow Field Review personnel to easily interact with the system to conduct business remotely in a secure and timely manner.
- Share data with other database systems within the department, particularly licensing and accounting.
- Provide responsive and flexible ad-hoc and standard management reporting capabilities.
- Support expanded work loads through system scalability.
- Improve the accuracy and timeliness of invoicing for plan reviews in order to maintain positive customer relations and FDD's revenue stream.
- Provide accurate and easily obtainable information for decision making during earthquake response.
- Allow flexibility to meet changing regulations.

2.4 Business Functional Requirements

Following are a list of functional requirements as identified by FDD staff.

Plan Review Requirements

1 Electronically store plans.
2 Automatically link electronic plans to projects.
3 Electronically enter and store plan review comments and discrepancies.
4 Accurately share data between accounting and plan review.
5 Provide information on monthly revenues with cost of reviews.
6 Generate ad hoc and analytic reports.
7 Record plan ins and outs.

8 Automatically provide information from Plan Review and Field Review to SB 1953 reviewers.

9 Assign unique identifiers for each building within a facility.

10 Provide information for staff workload planning.

11 Interface with the licensing system.

12 Track reviews by the SB 1953 unit for NPC compliance of new projects.

13 Notify the SB 1953 Unit of building construction actual start dates.

14 Track Geotech review reports.

15 Track design criteria reviews.

16 Support reporting of hospital compliance status.

17 Allow plan reviewers and field reviewers' access to hospital SB 1953 compliance status and review reports.

Field Review Requirements

1 Automatically generate a reminder for architects and engineers to send in final docs/approvals for Project Closure.

2 Monitor the progress of projects and issue flags for missed documents or dates.

3 Provide standard time reporting capability.

4 Provide remote access to time reporting.

5 Generate field review reports.

6 Provide remote access to Mileage log reporting.

7 Provide capability to automatically input field review comments.

8 Provide capability to automatically record Deficiencies and reduce manual entry.

9 Provide capability for structural engineers to draw on reports/forms electronically.

10 Automate field review reports.

11 Provide capability to create more than 1 page of a field review.

12 Track TIO information.

13 Allow timely printing of forms and reports in the field.

14 Provide capability to store electronic forms.

15 Provide a means for consistent and accurate inspection logs from IORs.

16 Provide capability to research projects for final inspections.

Emergency Operations Center Requirements

1 Provide unique identifiers for tracking all facilities.

2 Track facilities visited by EOC inspectors.

3 Track facility inspection status.

4 Integrate GIS to overlay epicenter map with map of hospitals in earthquake zone.

5 Identify high risk hospitals with the impact area.

6 Provide visual coding on the safety ratings of hospitals and their assessment status.

7 Generate standard and ad hoc reports on demand.

8 Generate a prioritized list of needed inspections.

9 Support assignment of inspectors to hospitals.

10 Track building modifications to facilities during the "no-permit" period following an earthquake.

11 Interface with the licensing system to provide information on all facilities including those that have not had construction.

12 Map other facility identifiers to the OSHPD facility ID.

13 Interact with RIMS and GIS to produce interactive reports.

14 Support trial runs and post-mortem reports for analysis.

Inspector of Record Requirements

1 System shall support user customizable IOR letters and notices.

2 System shall allow IOR search capabilities by region and county.

3 System shall support C-Level examinations and certifications.

4 System shall track 12 specialty areas for IOR certification.

5 System shall utilize integrated IOR databases.

Archives Requirements

1 Provide a comprehensive database of all archived files with sufficient detail for tracking and retrieval.

2 Provide locator information to support retrieval of archived files within 1 to 2 days.

3 Support centralized control of archived data.

4 Provide Los Angeles staff read and request access to the archive database.

5 Reduce manual data entry of locator information into the database.

6 Accommodate expanded quantity of identifying codes.

7 Support paper, digital and/or microfilm archives according to FDD policy.

Accounting Requirements

1. Generate notices for accounting actions based on project status.
2. Use uniform billing activity codes.
3. Use business rules in the validation of PT entered data to avoid accounting errors.
4. Generate notices of project changes for accounting actions.
5. Provide audit trails.
6. Provide clear and understandable invoice statements.
7. Identify outstanding invoices by facility.
8. Track Exam Fees for IOR examinations.
9. Provide capability to change and adjust accounting entries following Generally Accepted Accounting Practices and State Administrative Manual.

3 Baseline Analysis

3.1 Current Method

The Current Method describes the as-is current process. This section will address the objectives of the current system, the ability of the system to meet current and planned requirements, staff satisfaction with the system, and personnel requirements.

3.1.1 Manage IOR Certifications

According to the California Uniform Building Code (UBC), Administrative Code Part 1 Title 24, Inspectors of Record (IOR) must be certified by OSHPD. OSHPD is the governing authority for the IOR certifications and examinations. This responsibility includes managing the examination process and issuing certifications. According to the UBC, there are currently two levels of certifications:

- A Level
- B Level

A level certification includes all areas of the B level, but also includes structural building codes. OSHPD is currently developing a C Level certification and examination.

Examinations are developed by FDD staff and comply with State Personnel Board guidelines.

3.1.1.1 Process Applications

The FDD IOR staff is responsible for reviewing applications, processing fees, notifying applicants, and entering qualified applicants into the MS Access Exam Database.

3.1.1.1.1 Review Certification Applications and Registration Forms

The FDD IOR staff receives applications and recertification registration forms in hardcopy via the United States Postal Service. The types of applications and registration forms include:

- Level A Application
- Level B Application
- Level A Recertification Registration Form
- Level B Recertification Registration Form

As applications and registration forms are received, the FDD IOR staff scans the application for completeness, which includes confirming all applicable fields contain the correct information and fees are included.

An application for examination is a formal request from individuals desiring an A or B level certification. The FDD IOR staff reviews the applicant's experience to confirm the individual possesses the minimum qualifications outlined in the Administrative section (Part I, Title 24) of the California Building Code. If the FDD IOR staff is unsure of an applicant's qualification, the application is forwarded to a Regional Compliance Officer for review and final determination.

A registration form is a confirmation from a Level B or A IOR desiring to renew their certification. Since only a certified A or B IOR may recertify, a review of their qualifications is not necessary by the IOR staff.

Each application and registration form includes a fee. Fees include:

- Application Fee: $100
- Exam Fee (Level B): $300
- Recertification Fee: $100
- Recertification Fee after Expiration (additional fee): $100
- C Level Exam Fee: $100
- Seminar Fee (Level A): $225[1]

Fees that accompany an application or registration form are recorded on a hardcopy daily accounting log. The FDD IOR staff log the payment sender, the check number, fiscal year, amount of payment, exam attendee, and event identification. At the end of each day, the FDD IOR staff delivers the fees and a copy of the daily accounting log to the OSHPD Accounting Cashier. IOR staff keeps the log in the FDD office.

3.1.1.1.2 Notify Applicants

Applicants may be qualified or unqualified to participate in an examination. If an applicant is unqualified, FDD IOR staff sends a letter to the applicant informing them of their disqualification and identifying the areas in which they did not meet the minimum qualifications. The unqualified applications are kept on file for one (1) year per FDD office policy.

The qualified applicants, identified following this process as examinees, are sent a letter of acceptance. The letter includes the level in which the applicant qualified for examination, the date and location of the next examination, and fees received or owed. Applicants receive a form for them to confirm examination attendance.

3.1.1.1.3 Enter Qualified Applicants into Database

For each pending examination, the FDD IOR staff establishes a new MS Access examinations database per examination site (i.e., LA Exams Sept04). The FDD IOR staff manually enters the information from the applications and registration forms into the MS Access database. Information entered into the database includes:

- Applicant Name
- Level
- Fees
- Exam Date

[1] Seminar fees vary on facility costs.

- Address
- Phone Number

After all examinees are entered into the database, the FDD IOR staff runs a Fees Status report, which lists the fees due and paid per applicant. Letters are sent or the examinees are called reminding them of the examinations fees. As fees are received, the FDD IOR staff notates the fees received in the database, logs the fees in the daily accounting log, and delivers the fees to the Accounting Cashier.

3.1.1.2 Prepare Seminar

In preparation for the recertification exams, the IOR staff coordinate with the RCO's to prepare a seminar that precedes the recertification exam. The seminar includes information regarding changes in building codes and regulations, lessons learned, and best practices. During the seminar, the examinees are expected to document the information presented to be used during the examination.

3.1.1.3 Proctor Examinations

The FDD IOR staff acts as the proctor for all examinations in both Sacramento and Los Angeles. Examinations are usually held in State facilities. As the Proctor, the FDD IOR staff is responsible for ensuring the facility is set-up according to examination protocols based on State Personnel Board, which include:

- Ensuring tables and seating arrangements for the number of examinees.
- Confirming a table for the proctor.
- Confirming a table for the plans.
- Arranging for the examination sample plans to be delivered.

Most arrangements are performed in advance via telephone conversations with the facility's coordinator.

The day of the examination, the FDD IOR staff confirms examinee identifications by requesting picture identification. After the examinee's identification is verified, the FDD IOR staff accepts examination fees when the arrangements are made in advance of the examination date. Each examinee is provided a scantron form, blank sheets for challenges, and examination booklet. Examinees are required to bring the UBC for their use during the exam. The IOR proctor ensures the examinees do not have extra materials and cell phones or cameras that might compromise the exam.

After all examinees have checked in, the FDD IOR staff reviews the rules of conduct and the examination scoring process. If there are any questions, the FDD IOR staff answers. When all questions are answered, the FDD IOR staff starts the examination and stays to observe.

The Level B Exam is 6 hours, which contains four hours on code and 2 hours on plans. The Level A Exam is 8 hours, which contains four hours on code and four hours on plans. The exams have 200 multiple choice questions and have four sub-sections.

3.1.1.4 Score Examinations

3.1.1.4.1 Close Exam

The FDD IOR staff ends the examination at the appointed time, collects all exams and challenges, and returns to the Sacramento Office to begin the scoring process.

3.1.1.4.2 Score Exams

The FDD IOR staff manually scores the exams using the scantron answer sheet. Questions by discipline in code and plan are combined for scoring purposes and pass rate is 75% minimum by discipline. Examinee information, exam date, and exam scores are entered into the Logbook IOR module. Only exams with passing scores are entered into Logbook. The IOR module assigns IOR identification numbers and computes certification expiration date.

3.1.1.4.3 Review Challenges

Examinees are authorized to challenge any question on the examination that the examinee believes is erroneous, misleading, or vague. The challenge includes the question and why the question is being challenged. UBC is used to support the challenge. All challenges are delivered hardcopy to the Regional Compliance Officer for review and final determination. The RCO's final decision is used to score all the exams and to modify the exam for the next examination date as necessary.

3.1.1.5 Notify Examinees

Notification letters are generated using MS Access. The notification letter for passing examinees includes a certificate and a blank badge for the examinee to sign and return to FDD office.

The notification letter for non-passing examinees indicates score by discipline. The examinee is informed they may retake the exam within one year, during which their information will remain on file.

Examinees are notified if they pass 3 of 4 subsections of an exam. The FDD IOR staff call the examinee and schedule a retake of the failed exam subsection. Once the examinee retakes the exam, the process recycles to A0.3.1, with a 2 hour exam rather than a 6 or 8 hour exam.

3.1.1.6 Notify IORs for Recertification

Twice a year, the IOR staff generate a report from the IOR module listing all the certified Inspector of Records and their corresponding expirations. The IOR staff mails a letter and a registration form informing the IOR's of the next recertification examination date. IOR's mail completed registration forms and fees (See A0.1.1).

3.1.2 Manage Building Processes

FDD is responsible for the review and approval of health facility construction. The review and approval is controlled by the California Building Codes.

3.1.2.1 Process Plan Reviews

3.1.2.1.1 Review and Accept Application Packages

FDD Program Technicians (PT's) receive new and updated application packages via the United States Postal Service (USPS). New application packages generally include:

- Annual Building Permit Application
- Building Plans
- Application for Inspector of Record
- Testing, Inspection, and Observation Form

PT's open packages and sort the package items. The PT routes the Building Permit, Inspector of Record form, and legal authorization letters to the Field Review RCO. Form J's are forwarded to the SB 1953 review staff. The PT reviews the application for completeness, confirms the applicant is licensed, and confirms the selected IOR is licensed. Incomplete applications are returned to the applicant with a letter explaining the reason for non-acceptance.

The PT staff log complete applications into the Logbook, including facility information, building numbers, type of project, region, estimated project cost, IOR, and billing information. The system automatically assigns a new project number. This project number is a flag for the accounting staff that a new project has been created and to begin invoicing (A3.1). When a new project is entered, the system also assigns estimated review hours based on information entered into the system and based on historical data of similar projects. The system also generates an estimated target date for review completion based on OSHPD 60/30/30 policy.

A letter (325/TR Triage) is generated out of the Logbook system itemizing the items logged into Logbook and mailed to the point of contact for the project.

3.1.2.1.2 Perform Triage

When a project is entered in the system, the plans and accepted application are forwarded to the regional plan review staff. Plan review staff include the following disciplines:

- Mechanical Engineers
- Electrical Engineers
- Structural Engineers
- Fire and Life Safety Officers

The Regional Supervisor creates a Triage Form, which identifies and assigns disciplines to review projects plans.

Each discipline participates in the triage process. Triage is the process in which plans and applications are reviewed to determine if the applicant information is the same information on all the plans, to determine if the plans are complete, and to determine if all the plans are included. If any of the plan review disciplines believe the initial review criteria is lacking, the plans and/or applications are returned to the applicant.

If triage determines the project plans complete, one of three activities may occur:

- Issue a Defected Letter. This usually occurs when the plans are lacking in code compliance.
- Issue a Project Approval Letter. This usually occurs with small projects with few plans to review. Triage review is all that is necessary in reviewing the plans.
- Conduct a formal plan review process. This activity is the norm in FDD and usually consists of the medium to large projects. For formal review, the engineers review the estimated review hours in the Logbook and adjust the estimates according to their professional opinions regarding review time.

Defected review statuses are sent to facilities. Facility responses to the defected letters re-enter the Plan Review process at the beginning.

3.1.2.1.3 Prioritize Workload and Flow

The Regional Supervisors of each region will adjust each project's estimated review hours and target completion date based on staff workload and availability. Other factors calculated into the estimated review hours and target completion date includes the priority of the project (i.e., emergency room) and facility expectations.

Regional Supervisors prioritize workload and review flow throughout the Plan Review process. As projects are received and/or changed, the Plan Review supervisors reevaluate the prioritization and workload of the plan reviewers. Regional Supervisors typically use the functionality built into Logbook; however larger regions and projects may use MS Project.

3.1.2.1.4 Review Plans

Following triage and responding to Regional Supervisor prioritizations, the plan reviewers begin reviewing the project plans. As reviewers obtain plans from the bins, the reviewers enter receipt of the plans in the Logbook Review Screen. Comments regarding the plans are written directly on the plans, which are returned to the facilities for adjustments and modifications. Facilities mail in their modified plans and comments for back check reviews. Back check reviews may occur many times during the review process prior to Plan Approval.

After each review, plan reviewers input their review hours in the Logbook time sheet screen. These hours are used primarily to project estimated review times for future projects.

Once all project plans are approved, the Plan Review staff stamp each plan and initial their approval. Plan Review staff mail the approved plans to the facility and route a notice to the Regional Compliance Officer. Project Approval is a major milestone for Facilities and for FDD, because it is the trigger for construction.

SB 1953 staff review plans for compliance with SB 1953, which is now part of the California Building Code. Plans are reviewed, comments made, and comments forwarded to facilities.

3.1.2.2 Inspect Projects

3.1.2.2.1 Generate Plan Approval

As the forms are received, the PT inputs the information from these forms into Logbook in preparation for plan approval. Upon receipt of the plan approval notification from the Plan Review staff, the Regional Compliance Officer generates a Building Permit form from the Logbook system. The RCO reviews and signs the building permit, signs the IOR form, and reviews other project documents. Once all documents are signed, the RCO routes the signed documents to be copied, filed in FDD, and mailed to the project.

3.1.2.2.2 Conduct Field Reviews and Inspections

Field review staff receive notification of project commencement from various sources, including:

- Notice of Project Commencement from Facility and/or Lead Architect. This is a formal mechanism for informing FDD of Project start date. Approximately 40% of projects provide this notice to FDD.
- Receiving phone calls from Project Lead Architects, IORs, or Architects of Record (AOR) requesting Field Staff to conduct inspections at project site.
- Quarterly Report of Projects from the FDD main office reporting approved projects by region and county. Field staff are able to derive the new projects from the information provided on this report.

The field staff include the following disciplines:

- Area Compliance Officer
- Mechanical Engineer
- Electrical Engineer
- Structural Engineer
- Fire and Life Safety

Field inspectors conduct inspections based on the information provided on the Testing, Inspection, and Observation (TIO) Form. As inspections are completed, they manually or electronically generate inspection reports and mail or fax the reports to the Sacramento Office. The regional PTs manually enter the information provided on the reports into the Logbook system.

Field Staff also generate weekly timesheets, which breakdown their work hours by project number, hours, activity code, and mileage. The timesheets are completed manually and faxed to the Sacramento Office for entry into the Logbook system.

3.1.2.2.3 Review Post Approval Documents

During the project construction, field review staff may be presented with Post Approval Documents (POD) forms to be reviewed and approved. Field staff may:

- Review the PODs in the field and provide approval;

- Split the review between field staff and office staff; and/or
- Send the POD to the office staff for review and approval.

A POD may be a Change Order, Instruction Bulletin, Addendum, or Deferred Item. Once the field staff approve a POD, they mail the information to the Sacramento Office for entry into Logbook. This information is tracked, because a project cannot receive Closure with Compliance status if there are outstanding PODs. Also, PODs are used to track project costs resulting from Change Orders for invoicing purposes.

3.1.2.2.4 Track Project Inspections

The field PT generates a quarterly report from Logbook listing all the projects occurring in a region. The Quarterly Report lists each project and pertinent project information (e.g., the project number, the facility location, amount of project, date project created in FDD, date project approved by FDD, date of permit issuance). The report is used by the Regional Compliance Officers (RCOs), Area Compliance Officers (ACOs), and other field staff to monitor the progress of projects and to identify new projects.

3.1.2.2.5 Assign Performance Categories

As documents are received, the SB 1953 review staff review facility plans for compliance with SB 1953 building codes. Based on the compliance criteria, the SB 1953 staff assign Structural and Non-Structural Performance Categories, which are tracked in the Logbook SB 1953 module.

3.1.2.3 Approve and Close Finished Projects

When the Area Compliance Officer submits a 100% Construction Final report, the PTs initiate the Project Closure process in Logbook. Generally, the ACO's call the Sacramento or LA offices to confirm that no PODs are outstanding before issuing a 100% Construction Final Report. The PTs confirm all PODs are complete and approved. If a project has any outstanding PODs, then the PT will withhold entering the Final Report and will notify the ACO. Once the PT enters the 100% Construction Final report into the Logbook Construction Screen, the project automatically appears on a list of projects eligible for project closure. The PT enters the Closure Screen to print the 1st Letter of Eligibility for Project Closure. The letter informs facilities of any outstanding documentation that by California Building Code prohibits FDD from closing a project and provides the project 60 days to submit the necessary documentation.

The 1st letter is mailed to the project. After 60 days, a second letter is submitted, followed by a Final Request Letter. If a project has not submitted the necessary documents by the deadline posted on the Final Request Letter, the project is moved to Overdue Project status in Logbook and the PT "works the folder." In working the folder, the PT calls the contacts listed and requests the necessary information. If the project still does not respond with the necessary documents, the PTs close the project without compliance.

Before a PT can assign a closure status, a final cost must be generated for accounting purposes. A final cost may be supplied by the project or may be calculated by the PT. When the facility supplies the final cost, the PT compares the final cost with the estimated. If the final cost is less than the estimated cost by 5-10%, the PT issues a Discrepancy Letter requesting explanation for

cost difference. If the facility does not provide a final cost, the PT calculates the final cost by adding the change order costs to the initial estimated project cost.

If all the project documents are provided and a final cost is provided by the facility, the PT assigns a Closed with Compliance status to the project.

Once a closed status is assigned to the project, the PT pulls and archives the project files. Closed with Compliance projects are kept at the FDD office site for 6 months, and then forwarded to Archives. Closed without Compliance projects are kept for 12 months.

3.1.2.4 Archive Project Documents

The FDD Archives staff receives project documentation to be archived at the State Records Center (SRC). Upon receipt of the project files, the archives staff enter the project information into the Logbook Archives module. The project files are stored in the basement of the OSHPD Krest Building awaiting transfer to the State Records Center (SRC).

Twice a year, the Archives staff prepare the archived files for transfer to the SRC. The Archives staff generate a Logbook Report listing the projects in Closed status (Closed Inactive, Administrative Closure, Closed). A transfer list of plans to be archived is created and input to the Logbook Archive Module for each project being archived. The information input to the Logbook Archives module includes the Transfer List number and Box Number. Approximately 400 transfer lists are submitted to SRC twice a year.

The Archives staff process requests from outside clients and FDD staff to retrieve archived material. Requests arrive via email or telephone. The Archives staff try to respond to all requests via email for tracking purposes. When a request is received, the Archives staff first determine if the project is opened or closed. If a request is for a closed project, the Archives staff determine which archive database the project information is located in:

- Logbook Archive Module
- Access database for 1954 to 1982
- Los Angeles data base for projects after 1998

Once the appropriate database is determined, the Archives staff search for the file location. The files may be located in Los Angeles, Sacramento Archives office, or the SRC. If a project is at the SRC, the Archives staff submit a retrieval request manually via the SRC internet request system. SRC retrieved files generally arrive in a box of other files. The Archives staff search through the box of files and extract the requested files. If the requestor is FDD, the requested project files are delivered to the requestor. If the requestor is an external client, the requestor is informed the files are available for viewing or pick-up. The name of the individual in possession of the project files is entered into the Logbook Archives module.

When the project files are returned, the Archives staff entered receipt of the files in the Logbook Archives module and returns the files to its storage location.

3.1.3 Operate Emergency Response

3.1.3.1 Activate EOC

The Emergency Operations Center (EOC) activates immediately following notification of a disastrous event affecting many facilities. A disastrous event is usually an earthquake. Notification of an event may occur from many sources: CNN, other news channels, the OSHPD Director, or team members of the EOC. The Deputy Director of FDD determines if an event requires activation of the EOC.

The EOC is comprised of three primary units:

- Planning Unit. The Planning Unit plans the first 24 hours of activity and the long term activities.
- Operations Unit. The Operations Unit establishes inspection teams.
- Logistics Unit. The Logistics Unit arranges the needs of the inspection teams (e.g., transportation, lodging, food, water).

3.1.3.1.1 Record Event

If the Deputy Director determines an event requires activation of the EOC, a new event is logged into the EOC System, a module of the Logbook Database Tracking System. The EOC Planning staff enter into the Log Event screen the:

- Event Name
- Event Description
- Epicenter
- Richter Scale
- Latitude
- Longitude
- Depth
- Information Source
- Date
- Time

The EOC Planning staff use information from news agencies, National Geological Survey, State Office of Emergency Services, and other sources as input to the Logbook EOC Module.

3.1.3.1.2 Identify Response Needs

After the event is logged into the Log Event screen, EOC Planning staff identify the facilities in the event area. EOC Planning staff receive a map from the GIS, which identifies the geographic range of the event. From this map, the EOC Planning staff query the Logbook for facilities

located in the event area. The EOC also requests information from the OSHPD Licensing department for additional facilities located in the event area.

The EOC Planning staff also field phones calls and gather information from external sources (i.e., CNN, Response Information Management System (RIMS), and facilities) to determine the target areas and impacted facilities. The amount of time it takes to identify the target area and impacted facilities is usually less than 2 hours. Once the facilities are identified, the EOC staff research the structural performance categories of the buildings and begin prioritizing the facilities. The EOC Planning staff calculate the response needs based on the target area and prioritized facilities.

Once the response needs are identified, the EOC Planning staff develop an informal Immediate Action Plan, which identifies:

- Where the event occurred.
- Size of the event.
- How large of a response is required.
- The level of resources needed to accomplish the plan.
- The parameters of the response (i.e., response timeframe, magnitude, type of response, buildings, personnel).

The Immediate Action Plan is an informal listing of pertinent facts to allow flexibility for changing response needs. The Plan is presented to the EOC Incident Commander for approval and authorization to execute.

3.1.3.2 Execute Immediate Action Plan

Once approval has been obtained from the Incident Commander, the EOC Operations team contacts the appropriate field inspection staff and organizes response teams. The response teams are selected based on geographic location in relation to the event area. For example, if the event occurs in South Los Angeles, response teams will comprise staff from regions outside South Los Angeles, such as Sacramento or Coastal Regions.

3.1.3.2.1 Contact Field Staff

The EOC Operations team contacts field staff by phone and identifies their response team members and their area of responsibility.

3.1.3.2.2 Coordinate Travel and Accommodations

The EOC Logistics team coordinates travel and other accommodations for the response teams. Travel may be coordinated through private airlines or through government entities, such as the Coast Guard or National Guard.

3.1.3.2.3 Inspect Facilities

Field staff receive a list of facilities to be inspected. As field staff inspect hospitals, they may request hospital building plans. The field staff will generate inspection reports and will flag hospitals. Inspected facilities receive green, yellow, or red flags. Green flags indicate no

damage was experienced during the event. Red flags indicate facilities are too damaged to provide services to the public. Yellow flags indicate damage was experienced and operations may be limited to certain areas of the facility.

3.1.3.2.4 Log Inspector Reports

The EOC staff receive inspector reports via fax or courier delivery. The reports state the result of the inspection. As reports are received, the EOC staff enter the reported information into the Logbook EOC module.

3.1.3.2.5 Report/Assess Response Time

As reports are entered into the Logbook, the Incident Commander monitors the facilities inspected versus facilities not inspected and reports the status of the response. The Incident Commander may provide response information to the OSHPD Director and to other entities, such as the State Office of Emergency Services, and the Governor's Office.

The EOC generates reports for external entities that include number of buildings in the event area and number of beds per building.

3.1.4 Support FDD Operations

3.1.4.1 Perform Accounting

3.1.4.1.1 Generate Invoices

Invoices are generated after PT's enter new projects and new activities into the Logbook. The first invoice for a project is generated following creation of the project. When PT's enter a new project they assign a code number:

CODE	CODE NAME	BILL RATE
331	Full Review	1.64% of total project cost
321	Preliminary Review	10% of full review
330	Geotech Review	$5,000

As new projects are created, Logbook automatically notifies the Facilities Project Subsystem (FPS) that a new project has been created. The FPS staff, which are part of the OSHPD Accounting staff, run a nightly process that provides a list of new project numbers and all their corresponding billing codes. From this list, the FPS staff generate invoices from the FPS system, which reflects the codes and their corresponding costs based on information entered by the PT's. The FPS staff validate the invoices are accurate and void duplicate invoices. If errors are identified, the FPS staff engage the appropriate PT for clarification. After invoices are validated, they are mailed to the facilities.

3.1.4.1.2 Process Receivables

Facilities submit payments to the Los Angeles Office, the FDD Officer, and to the OSHPD Accounting Office. If Los Angeles or the FDD Office receive payments, they record the amount on a daily log and deliver to the OSHPD Accounting Cashier. Los Angeles deposits the checks and mails the copies of the checks, the deposit slip, and the daily log to the Accounting Office. The OSHPD Accounting Cashier receives checks in the mail. The Cashier retrieves the hardcopy invoice from the invoice binder. The Cashier copies the checks and invoices, staples them together, and records receipt of the check into an MS Excel spreadsheet. The spreadsheet is forwarded electronically and the copies are hand delivered to FPS staff. The FPS staff use the hardcopies to record the receivables into the FPS. The receivables are totaled and then manually entered into CalStars.

If the Cashier has difficulty finding the invoice (e.g., invoice already paid and thus missing from binder) the FPS staff is notified to research the problem.

3.1.4.1.3 Reconcile Invoices

FPS staff perform a monthly reconciliation of invoices generated and paid. FPS staff generate a report from FPS. The report is compared against the hardcopy invoices in the invoice binders. Once the report is reconciled against the invoices, the FPS staff export the report to MS Excel and total the invoices by fiscal year. The totals are entered into CalSTARS. The report is provided to other FPS staff and Accounting management.

3.1.4.1.4 Process Payment Accounts

FPS staff generate a monthly prepayment report for each prepayment account. The FPS staff run the prepayments report from the FPS Reports menu and export to MS Excel. The facilities invoice amounts are totaled on the spreadsheet. The FPS staff calculates the total charged, withdrawn, and credited to the prepayment account. A grand total is also calculated. The FPS then confirms the accuracy of the invoices and applies payments in FPS to the invoices.

3.1.4.1.5 Issue Collections Notices

After FPS staff reconcile the FPS with the hardcopy invoices, the FPS staff manually record the outstanding invoices into an MS Excel spreadsheet. The FPS staff use this MS Excel spreadsheet to track conversations with the Facilities. The FPS staff call the facilities 2 or 3 times before forwarding the outstanding invoices to the OSHPD Legal Office. The OSHPD Legal Office sends a letter to the facilities informing them they have 15 days to submit payments or the payments will be taken from their Medi-Cal reimbursements.

3.2 Current System Environment

Existing Infrastructure

General

A centralized, automation tool[2] provides data collection and reporting in support of FDD's state-wide business. This tool is integral to the business processes of the FDD, is critical to the provision of services, and is necessary for the fulfillment of FDD's State-mandated responsibilities.

The automation tool, in productive use for many years, consists of a database located in Sacramento, a series of business and reporting applications, and the communications network necessary to make the data and applications available to FDD personnel working throughout the State. The majority of automated applications, including the database and telecommunications networks, are supported and maintained for the business users by technicians in OSHPD's Information Systems Section (ISS) and by two analysts located in the FDD. The tool includes several unsupported variations and add-ons that are used to increase the productivity of the tool, to provide functionality not available through the supported tool, or to circumvent inoperative controls or access barriers.

This section describes the high-level details of the technical environment in preparation for developing FSR cost evaluations.

Environment

[2] In this case, the described automation tool is considered one part of FDD's complete "system" that is used to accomplish assigned business objectives. The other two parts are business processes and staffing skills. The automation tool is computer and technology centric. This includes all that is needed to deliver automation services, to implement business controls, and to accomplish repetitive processing for the organization.

- **Servers**: Several servers provide central database management, internet access, network management, server-to-server data sharing, print and data routing, and other centralized services for all Logbook activities. Most servers are located in Sacramento. Those servers located in the Los Angeles office provide local services and communications support to the Los Angeles office. All servers run a current version of Microsoft (MS) Server and Novel Netware.
- **Desktops**: FDD operates about 175 workstations located in OSHPD offices in Sacramento and Los Angeles. All workstations are generally well maintained and have current versions of most software. The oldest desktop workstations are Pentium 4 processors that operate at 1.9MHz or faster and run the MS Windows 2000 operating system[3]. Other installed software includes MS Office and Internet Explorer, Novell Netware and GroupWise, and Symantec Antivirus.
- **Printers**: Printers, both black & white and color, are LAN attached in each office.

Operations & Maintenance

- Application and database operations and management (O&M) are provided by dedicated staff from OSHPD's Information Systems Section (ISS). This includes routine activities of application and database error determination and resolution, coding, and testing[4]. Some capacity planning, availability, and performance planning is conducted on an as needed basis. The later applies to some rather long application latency times experienced at the Los Angeles office. While some availability and performance problems are reported, in general these do not constitute serious problems for the user groups.
- Change management for the application consists of source identification (legislative, user needs, et cetera), problem identification and change initiation, some change analysis (including change alternatives costing and decision processes), a set of design specifications, code testing, and limited as-built documentation.
- Security is governed by a rigorous LAN policy that provides tight security for both Logbook applications and data. Additional security is also provided by Logbook application modules in the form of user authentication. Sacramento servers (main data stores) reside on a raised floor in a protected environment.

Training

- Technical: no technical training or cross training is available.
- End-user: End user training, including training and reference materials, is available for some Logbook modules.
- System/technical documentation: very little current documentation is available.

Help Desk

A help desk activity is provided through the ISS and the FDD. It includes problem logging, routing, and tracking. This activity includes assistance with establishment of connectivity and resolution of application anomalies.

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[3] The FDD and OSHPD are testing the conversion of all PCs to Windows XP.

[4] Application design, including business requirements and technical design specifications, are developed by dedicated analysts from the FDD. These staff also provide desktop support for the logbook application.

Redundancy, Backup & Disaster Recovery

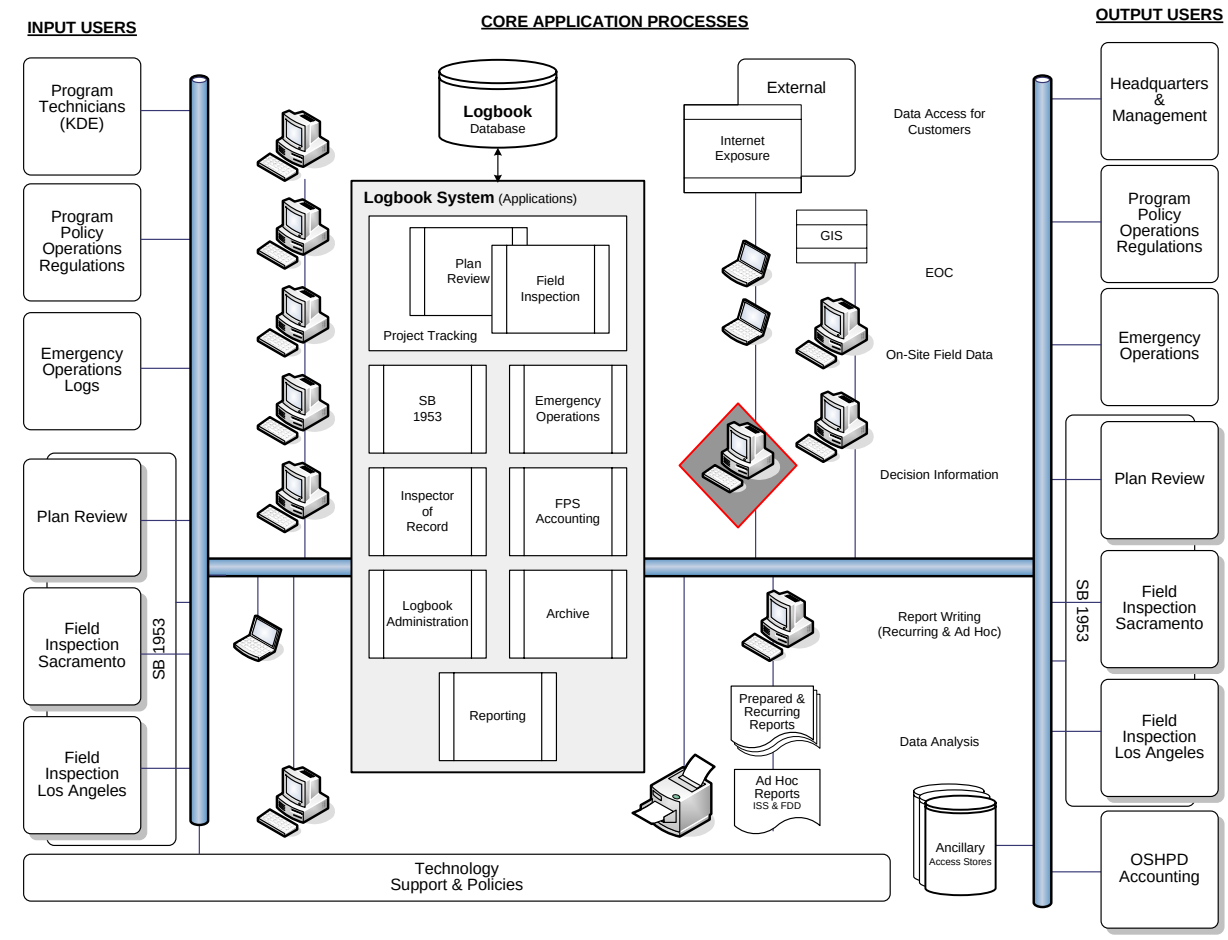
Regular backup processes are used.

Application

The Logbook application consists of input users, the core application processes, and output users. Input users are generally responsible for the entry of information into the Logbook system through a connected computing system. The desktop application provides controls, transport, and management of the entry data. Core application processes include the receipt, storage, tracking of data provided by the input users as requested by output users. Output users initiate queries of the database manager that provide Logbook data in useful reports and analyses in support of management reporting and decision making. Logbook has a few financial reports.

These application components are logically depicted in following figure. Some of the larger ancillary/external applications and processes are included in these descriptions.

In general, the application receives input information from the *Input Users* group, stores and maintains the information in a relational database format in the *Core Application Processes*, and reconstitutes the stored data into the form of useful reports, screens, and automated external interfaces that are exposed to the *Output Users* group.


INPUT USERS
CORE APPLICATION PROCESSES
OUTPUT USERS
Program Technicians (KDE)
Program Policy Operations Regulations
Emergency Operations Logs
Plan Review
Field Inspection Sacramento
Field Inspection Los Angeles
SB 1953
Logbook Database
Logbook System (Applications)
Plan Review
Field Inspection
Project Tracking
SB 1953
Emergency Operations
Inspector of Record
FPS Accounting
Logbook Administration
Archive
Reporting
External
Internet Exposure
GIS
Data Access for Customers
EOC
On-Site Field Data
Decision Information
Report Writing (Recurring & Ad Hoc)
Prepared & Recurring Reports
Ad Hoc Reports
ISS & FDD
Data Analysis
Ancillary
Access Stores
Technology Support & Policies
Headquarters & Management
Program Policy Operations Regulations
Emergency Operations
Plan Review
Field Inspection Sacramento
Field Inspection Los Angeles
OSHPD Accounting
SB 1953

Input Users

Input users are the FDD staff that put information into the application. These are shown in square figures on the left side of the figure. Important in this group are the nine Project Technicians (KDE: keyed data entry) who are responsible for much of the initial data recorded in the tool. The SB1953 group is shown to help correlate staff rosters with the logical depiction of the automation tool.

Core Application Processes

Data received from the *Input Users* is first processed on the desktop by a series of applications that has been developed to fulfill various business functions. These business functions are shown in the grey area labeled *Logbook System (Applications)*. These applications then access a relational database for the storage and management of the input data. Moreover, another set of applications shown in the gray area are responsible for the collection and organization of data returned to the *Output User* group in the form of reports, data extracts, and archive information.

An external-facing www portal provides some information to FDD's field staff and the general population. Some data is received from OSHPD's Geographic Information Survey (GIS) via GDT Dynamap/2000. However, there are few external interfaces to the Logbook system.

The Logbook application resides on the workstations. Data is delivered through the OSHPD network and the HHSDC wide area network. The desktop application is developed in Visual Basic.

The database management system (DBMS) is MS SQL Server 2000 and resides on servers located in Sacramento. In total, the Logbook system uses about 3GB of disk space, in its current design. All FDD Logbook data is contained in this DBMS, except for ancillary data stored in localized, uncontrolled databases. These databases are:

- George's Reports,
- Overtime Module,
- Forecast Module,
- Pre-approval Module, and
- Contracts Module (in development).

Output Users

Output users are FDD staff that request and receive organized information from the database application. These are shown in square figures on the right side of the figure. Data is taken from the database by prepared reporting tools located within the application or through custom coded reports generated by an analyst at the request of a user. Some of the custom coded reports take the form of an ad hoc report that may be generated through Crystal Reports or MS Access via an ODBC connection with the relational database.